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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,493	07/20/2006	Jens Scheidel	12810-00314-US1	4174
23416 7590 11/03/2008 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899				
EXAMINER KOSACK, JOSEPH R				
ART UNIT 1626		PAPER NUMBER		
MAIL DATE 11/03/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/586,493

**Applicant(s)**

SCHEIDEL ET AL.

**Examiner**

Joseph R. Kosack

**Art Unit**

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/02)  
Paper No(s)/Mail Date 4/9/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-18 are pending in the instant application.

#### ***Priority***

The claim to priority as a 371 filing of PCT/EP05/000779 filed on January 27, 2005, which claims benefit of DE 102004004685.9 filed on January 29, 2004 and DE 102004045036.6 filed on September 15, 2004 is acknowledged in the instant application.

#### ***Information Disclosure Statement***

The Information Disclosure Statement filed on April 9, 2007 has been considered by the Examiner.

#### ***Claim Objections***

Claim 15 is objected to because of the following informalities: the formula is not marked in the claim as formula Ib. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walter (USPN 3,773,809) in view of Barnette et al. (USPN 4,339,395) and Back et al. (USPN 4,990,645).

The instant claims are drawn to a process for separating nickel phosphorus complexes and free phosphorus ligands from a hydrocyanation mixture of 3-pentenitrile and adiponitrile by extracting the nickel catalyst and free ligand with a hydrocarbon wherein the minimum concentration of nickel catalyst + free ligand is  $0.5T + 20$  where T is the temperature in Celsius. Dependent claims require that an amine be added prior to or during the extraction and that at least a portion of the solids are removed before the extraction.

Walter teaches the process of extracting nickel tritolyl phosphite complexes and free tritolyl phosphite ligands from 3-pentenitrile and adiponitrile by adding n-heptane,

letting the mixture settle, and extracting the two phases from each other with the nickel complexes and free phosphite ligands in the upper n-heptane phase and the 3-pentenitrile and adiponitrile in the heavier phase. See Examples 1-8, columns 4-10.

Walter does not teach that the minimum amount of nickel and free phosphorus ligand present be dependent on the temperature of the extraction, that an amine can be added to aid in the extraction, and the removal of solids from the reaction mixture prior to performing the extraction.

As stated on page 2 of the specification, Barnette et al. teach a process for extractively working up hydrocyanation reaction effluents having monodentate ligands with a small amount of ammonia in order to prevent rag (solid) formation.

As stated on page 2 of the specification, Back et al. teach that the extractability of the nickel complex and the free ligands can be removed with the  $\text{Ni}(\text{CN})_2$  solid formed in the reaction is removed in a decanter before the extraction.

As to the formula for the calculation of the minimum amount of nickel catalysts and free phosphorus ligands to be present, it does seem that the extraction can still be accomplished when the minimum concentration of nickel complex and free phosphorus ligands is below what the formula gives. For example, if the temperature were  $60^\circ\text{C}$ , the minimum concentration would be 50%, yet Table 2 on page 21 shows many results where concentrations below 50% have phase separation at  $60^\circ\text{C}$ , including as little as 10% free ligand with no nickel complex present. At most, this would be a routine optimization of an obvious process. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges

by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Therefore, it would have been obvious to one of ordinary skill in the art to combine the process of Walter with the improvements suggested by Barnette et al. and Back et al. along with routine optimization of the catalyst concentration and free ligand concentration to yield the instant invention because there is a design need to develop quicker and easier extraction methods in industry in order to make chemicals with less expense.

### ***Conclusion***

Claims 1-18 are rejected. Claim 15 is objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R. Kosack whose telephone number is (571)272-5575. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/REI-TSANG SHIAO /  
Primary Examiner, Art Unit 1626

/Joseph R Kosack/  
Examiner, Art Unit 1626